**Fisheries Professional Board Examination (FishProBE) Review**

**Fisheries Department**

**POST-HARVEST FISHERIES**

(Pre-Board Examination)

**Direction:** Multiple Choice. Read the statements carefully and WRITE the letter of the correct answer before the number. Avoid Erasures. Choose the BEST answer.

1. Shellfish are good sources of vitamins and minerals. Oysters and mussels for instance have high levels of what particular mineral that is higher than red meat?

a. iodine

b. selenium

c. zinc

d. iron

2. Fish oils contain a unique type of polyunsaturated fatty acids, the so-called omega-3 type which is not found in significant quantities in other common foods. What are the two of the seven omega-3 fatty acids that are not found in beef, pork nor any vegetables?

a. Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA)

b. Linolenic acid (ALA) and Docosapentaenoic acid (DPA)

c. Linolenic acid (ALA) and Docosahexaenoic acid (DHA)

d. Eicosapentaenoic acid (EPA) and Docosapentaenoic acid (DPA)

3. What is the basis for the flaking off of myotome blocks between the sheets of myocommata during cooking?

a. Connective tissue breaks at 650 C

b. collagen easily breaks up in hot water

c. The myotomes gelatinize when cooked

d. all of the above

4. Fish protein contains the essential amino acids needed for building and repair of muscles, internal organs, skin and hair. What essential amino acids are lacking in cereal and root crops but not in fish?

a. lysine and methionine

b. alanine and valine

c. proline and leucine

d. glycine and histidine

5. On the death of the fish, processes of physical and chemical change caused by enzymes and microorganisms begin to occur. What is the phase in the postmortem changes that is a result of complicate biochemical reactions which cause muscle fibers to shorten and tighten, and finally the fish becomes stiff.

a. autolysis

b. proteolysis

c. rigor mortis

d. lipid oxidation and hydrolysis

6. Spoilage of fish due to chemical changes mainly occurs during storage in ice or frozen condition. Chemical changes may involve lipid autolysis and auto-oxidation. What do you call the undesirable flavor that results from the reaction of unsaturated lipids with oxygen?

a. acrid

b. rancid

c. bitter

d. cheesy

7. Common form of preparing fish wherein the meaty sides of the fish are removed from the backbone and ribs of the fish.

a. steaks

b. dressed

c. sticks

d. fillets

8. Which of the following is not an indicator of a fresh fish?

a. Gills have seaweedy odor

b. Eyes are bulging and protruding

c. very soft flesh

d. Scales adhere strongly

9. Which is not true about chilling?

a. Chilling is the most common practice in keeping the freshness of fish

b. Chilling means the reduction of temperature to some point below or above the freezing point of water in fish muscle

c. chilling totally stops spoilage

d. Icing is the most common and useful way of chilling the fish catch

10. What commodity has the longest storage time in ice (at 0-degree C)?

a. milkfish

b. tilapia

c. sardine

d. prawn

11. This method of chilling is preferred for air shipment of fish, as this does not cause leakage?

a. gel ice mat

b. ice slurry

c. dry ice

d. refrigerated air

12. The type of ice that has an advantage of small particles which give good ice-fish contact because of a large surface area.

a. block ice

b. flake ice

c. crushed ice

d. tube ice

13. What is the most preferred method of storing fish in ice?

a. bulking

b. shelving

c. boxing

d. layering

14. The choice of containers for keeping fish will greatly determine the end quality of the iced product. What type of plastic box became popular locally for transporting fish from the landing place to the market?

a. polyethylene

b. polypropylene

c. polyurethane

d. polystyrene

15. The primary aim of using insulation in containers is to slow down the rate of heat exchange between two bodies at different temperatures. The efficiency of an insulating material in preventing heat flow is measured as\_\_\_\_\_\_\_\_\_?

a. thermal conductivity

b. insulating capacity

c. insulation value

d. thermal capacity

16. Which of the following is not true about freezing?

a. freezing will improve the quality of fish

b. Chilling may keep fish between one to two weeks, while freezing under proper conditions will keep the fish for several months

c. Freezing is a form of partial, mild dehydration

d. Freezing is a way of stopping the deteriorative activities of microorganisms and enzymes

17. What stage of the freezing process is considered as the critical zone or period of thermal arrest?

a. removal of heat

b. crystallization of water

c. further cooling of frozen fish

d. quick freezing

18. What is the required storage temperature of frozen fish?

a. -30°C

b. -20°C

c. -10°C

d. 0°C

19. Quick freezing is a general term applied to most freezing processes. It gives rise to what term in frozen products?

a. air blast frozen

b. individual quick frozen

c. frozen food

d. long term frozen

20. The zone of maximum crystal formation is between what temperatures?

a. -1°C to -3°C

b. -10°C to -30°C

c. -1° to -5°C

d -20°C to -30°C

21. Frozen tuna becomes dark brown or dark red during cold storage due to oxidation of hemoglobin in the blood and myoglobin in the meat. How can you prevent the discoloration of the meat?

a. addition of ascorbic acid

b. must be kept frozen at -45°C

c. glazing must be done

d. the fillets should be wrapped before freezing

22. Milkfish is a bony fish; to improve its acceptability to a wider range of consumers deboning is done. During the process, the filamentous y-shaped spines are also removed. In what part of the fish are these spines located?

a. lateral

b. dorsal

c. ventral

d. all of the above

23. Bacteria that grow optimally at high salt concentrations but are unable to grow in salt-free media? They are common spoilage bacteria in fermented fish and dried fish.

a. *Sarcina littoralis*

b. *Alteromonas putrefaciens*

c. *Acinetobacter*

d. *Flavobacterium*

24. Salt penetration and the removal of water from the fish are influenced by a number of factors. Which of the following is not true about salt penetration?

a. the higher the fat content, the slower the salt uptake

b. the thicker the flesh, the slower the diffusion of salt to the center

c. the purer the salt, the slower the salt penetration

d. the fresher the fish, the more slowly salt will be taken up

25. A method of salting that is carried by rubbing fish with salt just before packing and each layer of fish is sprinkled with salt.

a. rubbing

b. kench process

c. wet salting

d. pickle curing

26. Measuring the water activity of food products determines the amount of loosely bound water or available water needed to support biological activity. At what water activity will most halophilic bacteria stop to grow?

a. 0.9 or below

b. 0.8 or below

c. 0.95 or below

d. 0.75 or below

27. The phase in drying in which the water on or near the surface of the fish evaporates.

a. constant rate period

b. rising rate period

c. falling rate period

d. evaporating rate period

28. Which of the following is true about drying?

a. lower relative humidity favors more rapid evaporation and higher drying rates

b. Higher relative humidities favor more rapid evaporation and higher drying rates

c. Relative humidities do not affect drying rate at all

d. Drying rate is dependent only in relative humidity

29. What is the recommended maximum moisture content of tuyo?

a. 15%

b. 10%

c. 40%

d. 25%

30. A method of drying wherein the heat is transferred to the fish from heated air or a heated surface and air movement above the fish removes moisture.

a. freeze drying

b. air drying

c. vacuum drying

d. mechanical drying

31. A spoilage/defect of dried fish wherein the outer portion of the fish is dry while the inner portion is still moist. This results from rapid drying.

a. case hardening

b. brittleness

c. reddening

d. tough flesh

32. The smoke components are partly responsible for the preservation and flavors of smoked fish. Some components have also bactericidal properties. What components are these?

a. carbon monoxide and carbon dioxide

b. nitrogen and nitrous oxide

c. polycyclic aromatic hydrocarbons

d. carbocylic acids and phenols

33. Which of the following curing process does not aid in preserving the smoked fish?

a. fermentation

b. drying

c. salting

d. precooking

34. Which of the following is not true about smoking?

a. The quicker the product dries the less smoke is absorbed

b. The longer the fish is smoked, the drier it becomes

c. Hot smoking affects smoke absorption

d. Higher relative humidity does not affect smoke absorption instead it affects drying rate

35. Hot smoking is the main type of smoking fishery products in the Philippines. What is the main disadvantage of hot smoking?

a. It is costly because it requires a lot of fuel to be burned

b. deposition of carcinogenic substances during smoking

c. It has a limited keeping quality if not stored at low temperature

d. The product has strong smoky aromas rather than sweet aroma

36. What is the usual temperature in cold smoking?

a. 25°C

b. 50°C

c. 30°C

d. 15°C

37. Which does not belong to the group?

a. nuoc-mam

b. nam-pla

c. belacan

d. patis

38. Which does not belong to the group?

a. trassi

b. buro

c. machao

d. pla-ra

39. The flavor of patis may be due to the activity of the following halophilic bacteria except one.

a. *Lactobacillus*

b. *Streptococcus*

c. *Staphylococcus*

d. *Micrococcus*

40. Which is not true about fermentation?

a. fermentation is the breakdown of inorganic substances into simpler component mainly by the action of enzymes aided by microorganisms.

b. Fermentation may fall under salting

c. Fermentation of aquatic products usually takes six to 12 months

d. Fermentation is hasten by the application of enzymes

41. The following are main ingredients in pickling/marinating solution except one.

a. vinegar

b. salt

c. msg

d. sugar

42. What ingredient in pickling/ marinating that acts as a preservative mainly by increasing the thickness of the pickling solution thereby lowering the water activity.

a. sugar

b. salt

c. vinegar

d. soy sauce

43. It is a dried snack produced from marinated fish fillets?

a. fish jerky

b. dried anchovies

c. dries squid

d. dried fish

44. The following are limitations during the sun drying of fishery products except one.

a. product contamination

b. slow drying rate

c. weather dependent

d. low moisture content

45. This spoilage is caused by the growth of *Wallemia genus*.

a. pink

b. sliming

c. case hardening

d. dun

46. Enzymes hasten the fermentation process. What enzyme that comes from pineapple could be added in fermented fish products?

a. papain

b. pepsin

c. trypsin

d. bromeline

47. The browning or blackening of frozen shrimps and prawns is termed as melanosis. What particular protein is oxidized into melanin?

a. tyrosine

b. hemoglobin

c. myoglobin

d. myoglobin

48. What is the best relative humidity in smoking?

a. 60%

b. 70%

c. 50%

d. 65%

49. What do you call fermented products added with carbohydrates such as cooked rice?

a. binuro

b. buro

c. bagoong

d. tinabal

50. In post-harvest fisheries, the principle is trash in trash out. What does it mean?

a. no preservation and processing method can improve the quality of fish

b. poor quality raw material can be improved by processing

c. trash fish can be use as raw material for fish meal

d. poor quality raw material can produce good quality finished product

51. The following statements are true, except -

a. Minced fish comes from trimmings of filleting operations.

b. Fish are minced to attain maximum utilization of fish flesh.

c. minced fish is unstable during frozen storage due to its enzymes, pigment and moisture content

d. Fish are minced if they have low market value, are seasonal and are caught in abundance

52. The following statements on surimi are true, except -

a. Surimi is a minced fish paste.

b. Fish with white flesh are preferred in making surimi

c. Sugars and polyphosphates are essential in making surimi

d. Surimi contains water-soluble proteins

53. The following are steps in making surimi, except -

a. Heating

b. Leaching

c. Meat-bone separation

d. de-watering

54. The following are not used to contain canned products, except -

a. retort pouch pack

b. Styrophore boxes

c. Plastic boxes

d. Polyethylene containers

55. The following are procedures for canning of marine products, except -

a. Heat processing

b. thawing

c. Exhausting/ Sealing

d. Cooling

56. It is the aim of this process to produce partial vacuum when canning.

a. Heat processing

b. thawing

c. Exhausting/ Sealing

d. Cooling

57. The following are spoilage problems in canned products, except -

a. Curd formation and adhesion

b. Struvite

c. Pink or Reddening

d. Honeycombing in tuna

58. Canning aimed to destroy the spores of *Clostridium botulinum*, thus temperature inside the retort is maintained at -

a. 100.1 0C

b. 99.1 0C

c. 120.1 0C

d. 121.1°C

59. These food additives are added to prevent food from drying out.

a. Humectants

b. Emulsifiers

c. Preservatives

d. Stabilizers

60. These substances are added to food to ensure that oil and water do not separate into layers:

a. Emulsifiers

b. Humectants

c. Antioxidants

d. Preservatives

61. The following are synthetic antioxidants, except -

a. Butylated hydroxytoluene

b. Magnesium stearate

c. Propyl gallate

d. Butylated hydroxyanisole

62. In the Philippines, the following agencies are responsible for inspection and application of quality control in aquatic products, except -

a. BFAR

b. BFAD

c. DOH

d. DTI

63. The following are good sources of alginates, except -

a. *Sargassum sp.*

b. *Laminaria sp*

c. *Gracilaria sp.*

d. *Macrocystis sp*

64. The following are good sources of carrageenan, except -

a. *Kappaphycus alvarezii*

b. *Eucheuma cottonii*

c. *Chondrus crispus*

d. *Gelidium amansii*

65. The following statements on fish oils are not true, except -

a. It is generally composed of 25% saturated and 75% highly unsaturated fatty acids

b. It is generally composed of 75% saturated and 25% highly unsaturated fatty acids

c. Fish oil structures are less complex than those of land animals

d. Myristic acid is the most common highly unsaturated fatty acid in fish

66. What do you call the hydrocarbon found in shark liver that is used in cosmetics?

a. Fish protein concentrate -

b. Fish silage

c. Offal

d. Squaline

67. Sea cucumbers are also known as -

a. Nam-pla

b. Beche-de-mer

c. Kecap-ikan

d. Trassi

68. It is a packaging method wherein the air is evacuated from the pack then replaced by a combination of gasses.

a. Laminate

b. Vacuum packaging method

c. modified atmosphere packaging

d. Vacuum skin packaging

69. The bar code in packed food consists of a 13-digit number. The last digit is called -

a. Logistical validator

b. check digit

c. manufacturer number

d. item number

70. It is defined as the characteristics and properties of the products that influence their acceptability to the consumers.

a. Quality

b. Nutritive value

c. Species or Identity

d. Sale and presentation to consumer

71. This is a chemical intoxification caused by eating tuna and mackerel -

a. Paralytic shellfish poisoning

b. Histamine poisoning

c. Ciguatera poisoning

d. Tetraodon poisoning

72. This type of poisoning is caused by dinoflagellates that is responsible for the occurrence of red tide -

a. Paralytic Shellfish Poisoning

b. Histamine poisoning

c. Neurotic shellfish poisoning

d. Diarrhetic shellfish poisoning

73. What do you call the type of poisoning mainly caused by eating reef fish and shellfish that have earlier consumed the toxic *Gambierdiscus toxicus*?

a. Diarrhetic shellfish poisoning

b. Neurotic shellfish poisoning

c. Tetraodon poisoning

d. Ciguatera Poisoning

74. The International Standards Organization defined this as the operational techniques and activities used to attain requirements for quality.

a. Quality assurance

b. GMP

c. HACCP

d. Quality Control

75. The following are chemical or biochemical methods in assessing quality, except -

a. Proximate analysis

b. Peroxide value

c. Standard Plate Count

d. K-value

76. Which of the following figures is a normal K-value of a fresh marine fish?

a. 100%

b. 99%

c. 50%

d. 3%

77. Which of the following peroxide values a fresh fish would likely have?

a. 5-10

b. 40-45

c. 65-70

d. 95-100

78. Which of the following thiobarbituric acid (TBA) values indicates a rancid fish?

a. 0.01

b. 0.1

c. 0.5

d. 3.0

79. What do you call a standard strategy that is based on the idea that safety and quality hazards exist at various points from fish capture to consumption?

a. GMP

b. ISO

c. HACCP

d. SSOP

80. It is a method of assessing product quality wherein the consumer selects a commodity based on his pre-conceived notion of its acceptable attributes and his general idea of its fitness for preparation, processing or consumption by using his senses.

a. Sensory method

b. Biochemical method

c. Microbiological method

d. Non-sensory method

81. What do you call the liquid product made from minced fish or fish offal and is usually prepared through the addition of acid of fermentable sugars?

a. Fish protein concentrate

b. Fish Silage

c. Offal

d. Squaline

82. It refers to the number of minutes at a specific temperature required to destroy a specific a specific number of pathogenic organisms.

a. R-value

b. Z-value

c. K-value

d. F-value

83. What do you call the vertical distance from the top of the can to the level of the product?

a. Seam

b. Headspace

c. Vent

d. Pressure relief valve

84. What do you call the powdered form of fish wherein the protein content is higher than in the raw material?

a. Fish Protein Concentrate

b. Concentrated fish protein

c. Fish silage

d. Fish meal

85. What do you call dried fishery products from excess catch, market rejects and waste materials from processing plants that contains high amount of digestible proteins, minerals, vitamins and essential amino acid?

a. Fish protein concentrate

b. Concentrated fish protein

c. Fish meal

d. Fish silage

86. Middlemen bridge the gap between producers and consumers. The following are middlemen, except -

a. Agents

b. Wholesalers

c. Fishermen

d. Retailers

87. The following are ill practices committed by traders and vendors, except -

a. Using accurate weighing scale

b. Putting nails on prawn heads

c. Adding of potassium aluminum phosphate in smoked products

d. Mixing of good quality and low quality products

88. What do you call the method that determines the extent of degradation of adenosine triphosphate to hypoxanthine?

a. Peroxide value determination

b. K-value determination

c. Trimethyl amine oxide determination

d. Total volatile basic nitrogen determination

89. Which of the following is not an element of HACCP?

a. Determination of critical points

b. Value addition of fish

c. Documentation and record keeping

d. Establishment of procedures for verification

90. What do you call the length of time that fish remains acceptable as human food?

a. Rigor mortis

b. Retention time

c. Shelf-life

d. Threshold

91. What do you call the deterioration in which oxygen reacts with fats resulting to production of rancid flavour?

a. Nucleotide deterioration

b. Amine compound degradation

c. Oxidative rancidity

d. Protein deterioration

92. What do you call a step or process at which control can be applied and food safety hazard can be reduced to an acceptable level?

a. Critical correction point

b. Control point

c. Critical Control Point

d. Correction point

93. Which of the following moisture content is recommended by Codex Standards for dried shark fins?

a. 15%

b. 18%

c. 16%

d. 14%

94. What is the primary source of agar in the Philippines?

a. *Gracilaria sp.*

b. *Gelidium sp.*

c. *Pterocladia sp*

d. *Laminaria sp*

95. Which of the following is not a method for extraction of liver oil?

a. wet reduction process

b. Direct steaming process

c. Alkali digestion

d. Enzyme digestion

96. Which of the following is not a method in sea cucumber processing?

a. Descumming

b. Fermentation

c. Smoke drying

d. Slitting

97. What do you call the method in sea cucumber processing wherein the sandfish is buried in the beach to remove the calcareous material in its outer skin?

a. Descumming

b. Slitting

c. Gutting

d. Sun drying

98. What is the quality management system, published in 1987 that was developed in response to the challenges in increasing market globalization, and that emphasizes on the quality of a company’s product as the key factor in the performance of the company?

a. Quality control

b. Quality assurance

c. ISO 1900

d. Codex Standards

99. It refers to anything in the total operation that might contaminate food and make it unsafe for consumers, or that can mislead the buyers.

a. Critical points

b. Damage

c. Contamination

d. Hazard

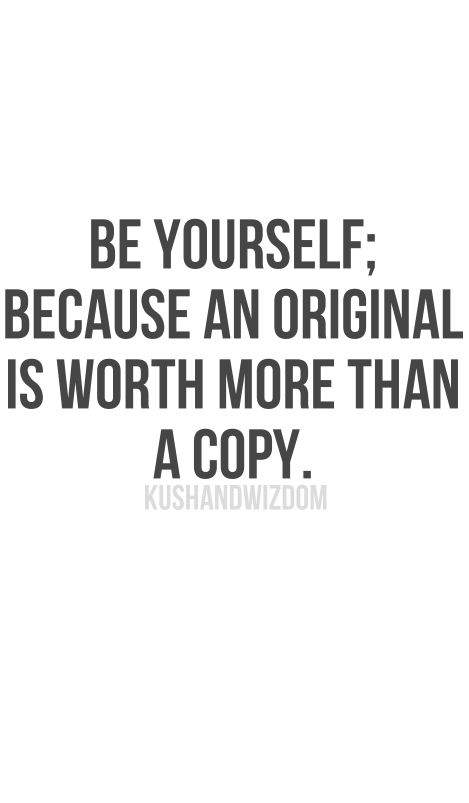
100. What is the standard headspace for cans?

a. 6 % of the content volume

b. 8% of the content volume

c. 5/16 inch

d. 3/16 inch



**Post Harvest\_set…H**

**Answer key**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. d | 26. d | 51. a | 76. d |
| 2. a | 27. a | 52. d | 77. a |
| 3. b | 28. a | 53. a | 78. d |
| 4. a | 29. c | 54. a | 79. c |
| 5. c | 30. b | 55. b | 80. a |
| 6. b | 31. a | 56. c | 81. b |
| 7. d | 32. d | 57. c | 82. d |
| 8. c | 33. a | 58. d | 83. b |
| 9. c | 34. d | 59. a | 84. a |
| 10. d | 35. b | 60. a | 85. c |
| 11. c | 36. c | 61. b | 86. c |
| 12. b | 37. c | 62. d | 87. a |
| 13. c | 38. a | 63. c | 88. b |
| 14. d | 39. a | 64. d | 89. b |
| 15. a | 40. a | 65. a | 90. c |
| 16. a | 41. c | 66. d | 91. c |
| 17. b | 42. a | 67. b | 92. c |
| 18. a | 43. a | 68. c | 93. b |
| 19. b | 44. d | 69. b | 94. a |
| 20. c | 45. d | 70. a | 95. a |
| 21. a | 46. d | 71. b | 96. b |
| 22. a | 47. a | 72. a | 97. a |
| 23. a | 48. a | 73. d | 98. c |
| 24. c | 49. b | 74. b | 99. d |
| 25. b | 50. a | 75. c | 100. d |